



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,452	11/16/2001	Satoshi Aoyagi	SIW-022	5172
959 7590 03/12/2007 LAHIVE & COCKFIELD, LLP ONE POST OFFICE SQUARE BOSTON, MA 02109-2127			EXAMINER WALKER, KEITH D	
			ART UNIT	PAPER NUMBER
			1745	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/12/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

09/988,452

Applicant(s)

AOYAGI ET AL.

Examiner

Keith Walker

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 and 36 is/are pending in the application.
- 4a) Of the above claim(s) 1-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/18/07 has been entered.

### ***Election/Restrictions***

Newly amended Claims 1-17 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The product of claim 36 can be used in a materially different process.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 1-17 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 1-34 & 36 are pending in the application and claims 1-34 are withdrawn. Claim 36 is pending examination and rejected for the reasons below.

### ***Claim Interpretation***

Regarding claim 36, Applicant has requested the claim language be given the "means plus function" interpretation under 35 USC 112 6<sup>th</sup> paragraph. For "means plus

function" language to be granted, a three-prong test must be met (MPEP 2181). Claim 36 fails both the second and third prongs of the test. For the second prong, "35 USC 112 6<sup>th</sup> paragraph applies to functional method claims where the element at issue sets forth a step for reaching a particular result, but not the specific techniques or procedure used to achieve the result." (MPEP 2181) As such the claim sets forth a procedure for reaching a particular result and therefore fails this prong. For the third paragraph, 6<sup>th</sup> paragraph "does not apply when the claim limitation itself recites sufficient acts for performing the specified function." (MPEP 2181) The limitation of claim 36 sets forth too much structure and sufficient acts for performing the specified function.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

1. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what "supplying an excess supply amount of reacting gas" means. Is the excess supply in excess of the normal or previous operating amount or in excess of what is needed in the new upcoming state of operation?
2. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is meant by a capacitor "substantially

directly connected" to a fuel cell. Is the connection electrical or physical? If the connection is electrical what part of the connection or make-up of the connection is not directly connected, i.e. what constitutes the non-directly connected part?

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. (5,964,309), in view of JP 08-214452 (Takeshi).

Kimura teaches a power supply system with a stack of fuel cells connected to a storage battery in parallel. The reacting gases are supplied to the fuel cell in amounts based on the estimated output of the fuel cell, the charge of the storage battery, and the amount of power required by a load. The feed amount includes the amount required for providing the required power to the load and a feed adjustment based on the charge state of the storage battery. The storage battery may be charged by the fuel cell and/or supply energy to the load in addition to that supplied by the fuel cell (Figs. 1 & 7, Abstract). The fuel cell system determines the amount of reactants needed to supply the fuel cell based on the charge-discharge state of the battery. Thus, if the battery is in short supply of power, then a larger supply of reactants to the fuel cell is needed to overcome the shortage of reserve power in the battery (2:45-3:31). Reactant gases are

Art Unit: 1745

supplied to the fuel cell based on target values of the motors and machinery used with an electric vehicle (8:15-41).

However, Kimura fails to teach a capacitor that is directly connected to the fuel cell.

Takeshi teaches a hybrid power system in which batteries or electric double capacitors are charged by a fuel cell and provide additional power to a load ([0002-0004], [0010]). The current-voltage characteristics of the fuel cell and of the energy storage device (whether it be a battery or capacitor) inherently depend on their respective internal resistances (Ohm's Law:  $V=IR$ ). The system evaluates the internal resistance of the capacitor and increases the reactants of the fuel cell to overcome the resistance of the capacitor ([0018-0019]). The capacitor is used to supply a temporary supplemental amount of power to the load due to an increase in the power requirements (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to would have recognized the ability of an electric double capacitor in the hybrid system as taught by Takeshi to perform the same function as the storage battery in the fuel cell power supply system as taught by Kimura because batteries and capacitors are equivalent means to provide additional power to a load and to be charged by fuel cells.

### ***Response to Arguments***

Applicant's arguments with respect to claim 36 have been considered but are moot in view of the new ground(s) of rejection.


**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Walker whose telephone number is 571-272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K. Walker

  
PATRICK RYAN  
EXAMINER